

**Amendments and Listing of Claims:**

Please amend the claims as indicated in the following claim set. The claim set herein is intended to replace all previously submitted claim sets.

1. (currently amended) An apparatus for reading a chemical indicator for monitoring a sterilization process, ~~the chemical indicator comprising a substantially flat surface and a sterilizing agent sensitive ink associated with the surface, the ink providing a first indicating state prior to being exposed to the sterilization process, and a second indicating state after being exposed to at least a portion of the sterilization process~~ the apparatus comprising:

a) an illumination source for directing energy toward a chemical indicator of the type comprising a substantially flat surface and a sterilizing agent sensitive ink associated with the surface, the ink providing a first indicating state prior to being exposed to the sterilization process, and a second indicating state after being exposed to at least a portion of the sterilization process, the first and the second indicating states being distinguished one from the other by color of the surface, the illumination source positioned to direct the energy toward the substantially flat surface;

b) a detector for collecting energy reflected from the surface and for providing a signal indicative of the color of the surface based on the energy from the substantially flat surface;

c) positioning means for positioning the substantially flat surface of the chemical indicator relative to the illumination source and the detector;

d) a controller for controlling the detector and illumination source; and

e) processing means for processing the signal from the detector, for distinguishing the first and second states, and for determining whether the chemical indicator is in said first or said second state.

2. (original) An apparatus according to claim 1 wherein the illumination source is capable of providing light at an angle of incidence with the surface of more than approximately ten degrees and less than ninety degrees.

3. (original) An apparatus according to claim 2 wherein the detector collects light from the surface at a substantially normal angle.

4. (original) An apparatus according to claim 1 wherein the illumination source is capable of scanning through a variety of wavelengths of light.

5. (original) An apparatus according to claim 1 wherein the illumination source comprises a plurality of light sources capable of providing different wavelengths of light and an optical mixer.

6. (original) An apparatus according to claim 4 wherein the detector is sensitive in a substantially repeatable fashion to a variety of light sources.

7. (original) An apparatus according to claim 1 wherein the processing means includes nonvolatile memory that includes reference data.

8. (original) An apparatus according to claim 7 wherein the reference data includes data generated from sterilization indicators that have been exposed to varying degrees of a sterilization process.

9. (original) An apparatus according to claim 7 wherein the processing means includes means for comparing information generated from said chemical indicator with reference data.

10. (original) An apparatus according to claim 7 wherein the processing means includes means for calibrating components of the apparatus.

11. (currently amended) ~~The~~ An apparatus ~~of~~ according to claim 1 further comprising means for reading at least a portion of a bar code printed from a permanent, substantially colorfast ink.

12. (original) An apparatus according to claim 1 further including output means for communicating the results of the chemical indicator to a user or another computer.

13. (original) An apparatus according to claim 1 wherein the chemical indicator comprises a code comprising a portion including a permanent, substantially colorfast ink and a portion comprising a sterilization process sensitive ink, the code having a spatial size and position; and the apparatus comprises a linear charge coupled device (CCD) capable of detecting the spatial size and position of said code.

14. (original) An apparatus according to claim 1 wherein the positioning means includes a means for holding the chemical indicator in a fixed, predetermined orientation relative to said illumination source and said detector.

15. (original) An apparatus according to claim 1 wherein the processing means comprises a complementary metal oxide semiconductor (CMOS) circuit.

16. (original) An apparatus according to claim 1, wherein the processing means comprises a programmable microprocessor.

17. (original) An apparatus according to claim 1 wherein the processing means includes memory means for storing sterilization information.

18. (original) An apparatus according to claim 1 wherein the processing means includes control means.

19. (new) An apparatus for reading a chemical indicator for monitoring a sterilization process, the chemical indicator comprising a substantially flat surface and at least one of a plurality of sterilizing agent sensitive inks associated with the surface, each of the plurality of inks providing a first indicating state prior to being exposed to the sterilization process, and a second indicating state after being exposed to at least a portion of the sterilization process, the apparatus comprising:

- a) an illumination source for directing energy toward the surface;
- b) a detector for collecting energy reflected from the surface and for providing a signal based on the energy from the surface;

c) positioning means for positioning the surface of the chemical indicator relative to the illumination source and the detector;

d) a controller for controlling the detector and illumination source; and

e) processing means for processing the signal from the detector, for distinguishing the first and second states, and for determining whether the chemical indicator is in said first or said second state, wherein

the processing means includes reference data about each of the plurality of inks, and includes means for comparing information generated from said chemical indicator with the reference data.

20. (new) An apparatus according to claim 19 wherein the first and the second indicating states for each of the plurality of inks are distinguished one from the other by color, and wherein the signal is indicative of the color of the surface.